Project-level Conformity Determination for the Intercounty Connector Project in Maryland

I. Purpose of this document

The Clean Air Act section 176(c) requires that federally supported highway and transit project activities are consistent with state air quality goals, found in the *state implementation plan* (SIP). The process to ensure this consistency is called Transportation Conformity. Conformity to the SIP means that transportation activities will not cause new violations of the *national ambient air quality standards* (NAAQS or "standards"), worsen existing violations of the standard, or delay timely attainment of the relevant standard.

Transportation conformity is required for federal supported transportation projects in areas that have been designated by the U.S. Environmental Protection Agency (EPA) as not meeting a NAAQS. These areas are called *nonattainment areas* if they currently do not meet air quality standards or *maintenance areas* if they have previously violated air quality standards, but currently meet them and have an approved Clean Air Act section 175A maintenance plan. On January 5, 2005, the EPA designated the Washington, DC-MD-VA area as nonattainment for fine particulate matter, called $PM_{2.5}$. This designation became effective on April 5, 2005, 90 days after EPA's published action in the Federal Register. Transportation conformity for the $PM_{2.5}$ standards applies on April 5, 2006, after the one-year grace period provided by the Clean Air Act. At that time, metropolitan $PM_{2.5}$ nonattainment areas must have in place a transportation plan and transportation improvement program (TIP) that conforms and federally supported projects must also be shown to conform after the end of that grace period. For $PM_{2.5}$, project-level conformity also requires an assessment of localized emissions impacts for certain projects. This localized assessment is called a *hotspot analysis*.

The Intercounty Connector (ICC) project area (Montgomery and Prince George's counties in Maryland) is within the Washington, DC-MD-VA $PM_{2.5}$ nonattainment area; and therefore the project is required to meet Transportation Conformity requirements found in 40 CFR Part 93 as amended. This document addresses the project level transportation conformity requirements for the ICC, including a hotspot analysis that is described in greater detail in Section V.

EPA amended the Transportation Conformity rule on March 10, 2006[1], requiring a hotspot analysis as part of project-level conformity in $PM_{2.5}$ nonattainment areas for certain projects. The ICC $PM_{2.5}$ hotspot analysis could not be completed until the amendment was final. Since the *Final Environmental Impact Statement/Final Section 4(f) Evaluation* (FEIS) for the ICC was approved on January 3, 2006, the $PM_{2.5}$ hotspot analysis was not included in the FEIS. Therefore, public review and comment for this hotspot analysis is being undertaken separately from that of the ICC FEIS.

The project is in the final stage of NEPA development. The Draft EIS was approved in November of 2004. A Final EIS was approved on January 3, 2006. The Final EIS indicated Corridor 1 as the Preferred Alternative. A Record of Decision is anticipated in Spring 2006.

[1] EPA posted the final rule on its website on March 1, 2006 and the final rule was published in the Federal Register on March 10, 2006.

II. Intercounty Connector Project Description

General

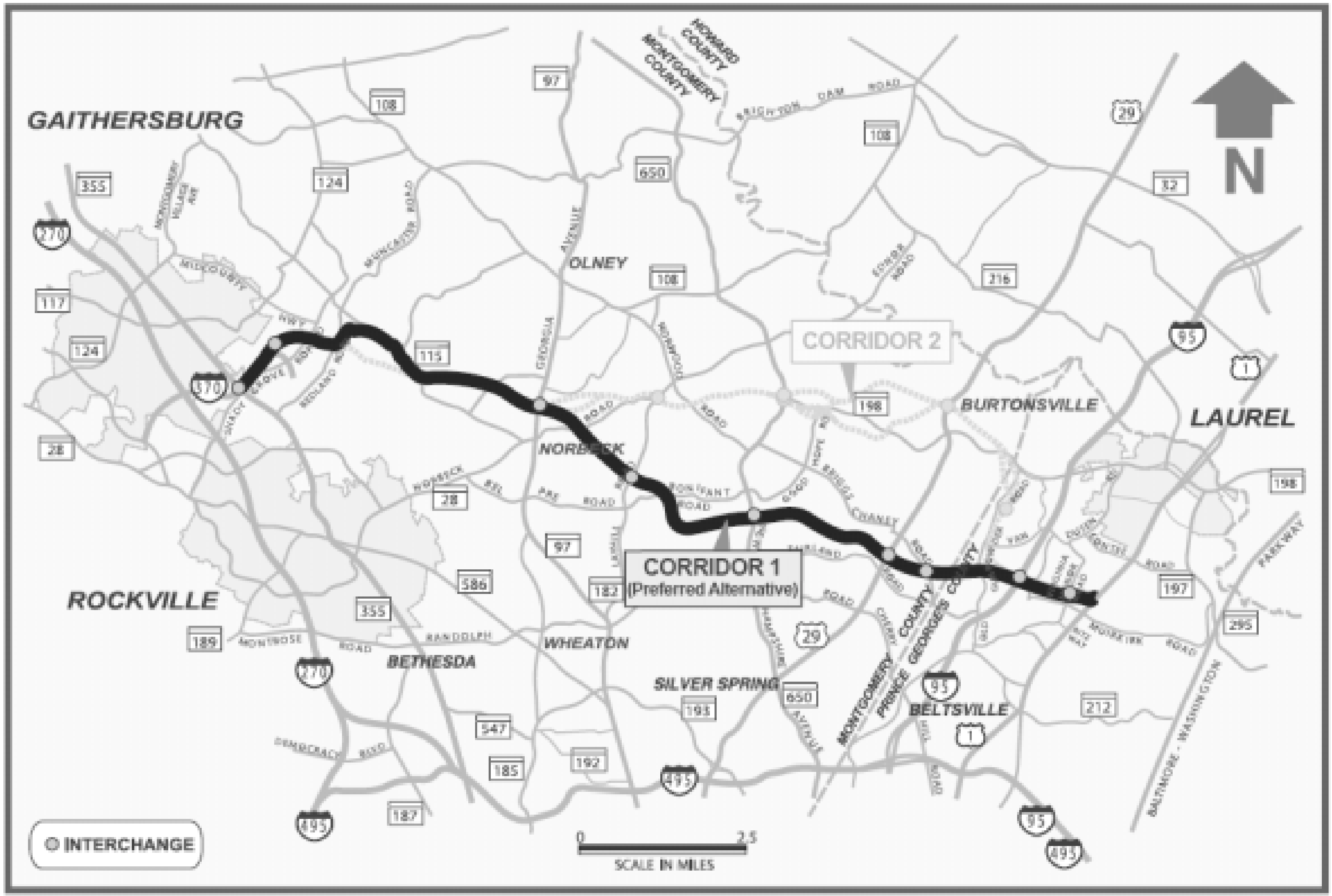
The proposed action, the Intercounty Connector (ICC) would provide a multi-modal 6-lane divided (3 lanes in each direction) east-west highway to link existing and planned development between I-270 and I-95/US 1 corridors in Maryland, a distance of approximately 18 miles. The ICC study area is located in Montgomery and Prince George's counties, north of Washington D.C., extending from I-270 to I-95/US 1, and from the Capital Beltway to the Patuxent River. The study area encompasses an area of mixed land use with heavy concentrations of existing and planned employment along the I-270 and I-95/US 1 corridors, dense residential development in the southern section and some areas of lower density development in the northern section. For a more detailed discussion of the study area land use, please refer to the Chapter 2 of FEIS. While three alternatives were retained for detailed study (one No-Action and two build alternatives) as part of the environmental review process, this analysis was conducted for the Preferred Alternative. The design year for the ICC is 2030 and it is expected to be open to traffic in 2010.

Preferred Alternative

The preferred alternative identified in Chapter 7 of the FEIS is the Corridor 1 build alternative (Figure 1). Corridor 1 follows the general alignment proposed for the ICC by Montgomery and Prince George's counties in their Master Plans. This alternative extends approximately 18 miles from I-370/I-270 near the Shady Grove Metrorail Station to US 1 south of Laurel. Approximately 16 of the 18 miles are located in Montgomery County, and approximately two miles are in Prince George's County. The alignment options being recommended for inclusion with the Preferred Alternative are Rock Creek Option C Grade Separation and Northwest Branch Option A with an interchange at Layhill Road. The Preferred Alternative would include eight interchanges, located at MD 355, Shady Grove METRO Access/Shady Grove Road, MD 97 (Georgia Avenue), MD 182 (Layhill Road), MD 650 (New Hampshire Avenue), US 29/Briggs Chaney Road, I-95, and Virginia Manor Road, as well as an at-grade intersection with US 1.

In addition, Corridor 1 would include park-n-ride lots at the southwest quadrant of ICC/MD 97, the northeast quadrant of ICC/MD 182, and the southwest quadrant of ICC/US 29, and would include an ICC bus route with potential express bus service pick-up/drop-offs at the existing Shady Grove Metrorail Station, the nearby Glenmont Metrorail Station, the proposed MD 97, MD 182, and US 29 interchanges, and at the proposed US 1 intersection (and thereby the Muirkirk MARC Station). The Corridor 1 Alternative would also include a bicycle/pedestrian route, and a package of environmental stewardship opportunities.

Figure 1. Corridor 1: Preferred Alternative for the Intercounty Connector



III. Background

What is Fine Particulate Matter ($PM_{2.5}$)?

Particulate matter (PM) is the term for particles and liquid droplets suspended in the air. Motor vehicles (i.e., cars, trucks, and buses) emit direct PM from their tailpipes, as well as from normal brake and tire wear. In addition, vehicles cause dust from paved and unpaved roads to be re-entrained, or re-suspended, in the atmosphere. Also, highway and transit project construction may cause dust. Finally, gases in vehicle exhaust may react in the atmosphere to form PM.

Particles come in a wide variety of sizes and have been historically assessed based on size, typically measured by the diameter of the particle in micrometers. $PM_{2.5}$, or fine particulate matter, refers to particles that are 2.5 micrometers in diameter or less. (Note: A human hair is about 70 micrometers in diameter and a grain of sand is about 90 micrometers in diameter). The National Ambient Air Quality Standards for fine particulate matter include an annual standard (15.0 micrograms per cubic meter (ug/m3)) and a 24-hour standard (65 ug/m3). The annual standard is based on a 3-year average of annual mean $PM_{2.5}$ concentrations; the 24-hour standard is based on a 3-year average of the 98th percentile of 24-hour concentrations.

Statutory Requirements for PM Hotspot Analyses

On March 10, 2006, EPA issued amendments to the Transportation Conformity Rule to address localized impacts of particulate matter: "$PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-level Transportation Conformity Determinations for the New $PM_{2.5}$ and Existing PM_{10} National Ambient Air Quality Standards" (71 FR 12468). These rule amendments require the assessment of localized air quality impacts of Federally-funded or approved transportation projects in PM10 and $PM_{2.5}$ nonattainment and maintenance areas deemed to be *projects of air quality concern*[2]. This assessment of localized impacts (i.e., "hotspot analysis") examines potential air quality impacts on a scale smaller than an entire nonattainment or maintenance area. Such an analysis is a means of demonstrating that a transportation project meets Clean Air Act conformity requirements to support State and local air quality goals.

Qualitative hotspot analysis is required for these projects before EPA releases its future quantitative modeling guidance and announces that quantitative $PM_{2.5}$ hotspot analyses are required under 40 CFR §93.123(b)(4). EPA requires hotspot findings to be based on directly emitted $PM_{2.5}$, since secondary particles take several hours to form in the atmosphere giving emissions time to disperse beyond the immediate area of concern. The Conformity Rule requires $PM_{2.5}$ hot-spot analyses to include road dust emissions only if such emissions have been found significant by EPA or the state air agency prior to the $PM_{2.5}$ SIP or as part of an adequate $PM_{2.5}$ SIP motor vehicle emissions budget (40 CFR §93.102(b)(3)). Emissions resulting from construction of the project are not required to be considered in the hotspot analysis if such emissions are considered temporary according to 40 CFR §93.123(c)(5).

IV. $PM_{2.5}$ Regional Conformity Determination

Section 176(c) of the Clean Air Act and the federal conformity rule require that transportation plans and programs conform to the intent of the state air quality implementation plan (SIP) through a regional emissions analysis in $PM_{2.5}$ nonattainment areas. The National Capital Region 2005 Constrained Long Rang Transportation Plan (CLRP) and the 2006-2011 Metropolitan Transportation Improvement Program (MTIP) have been determined to conform to the intent of the SIP. The US Department of Transportation made a $PM_{2.5}$ conformity determination on the CLRP and the MTIP on February 21, 2006, and thus there is a currently conforming transportation plan and TIP in accordance with 40 CFR 93.114. The current

[2] Criteria for identifying *projects of air quality concern* is described in 40 CFR 93.123(b)(1), as amended.

conformity determination is consistent with the final conformity rule found in 40 CFR Parts 51 and 93. The ICC project was included in the regional emissions analysis and there have been no significant changes in the project's design concept or scope, as used in the conformity analyses. Therefore the project comes from a conforming plan and program in accordance with 40 CFR 93.115.

V. $PM_{2.5}$ Hot Spot Analysis

As noted previously, EPA's final rule on $PM_{2.5}$ hotspot analyses requires localized assessment for projects of air quality concern. The ICC project meets the criteria set forth in 40 CFR 93. 123(b)(1) as amended for projects of air quality concern primarily because it is a new highway facility with a significant level of diesel vehicles; thereby requiring a hotspot analysis. The weighted truck percentage for all trucks at the eastern terminus of the proposed ICC alignment is 10.5 percent, which is over EPA's examples of projects of air quality concern of eight percent diesel trucks requiring analysis as stated in the preamble of the rule. Construction-related emissions for the project were considered to be temporary since the project will be completed with in the next five years, meeting the criterion of section 93.123(c)(5). Therefore, these emissions are not required to be considered in this hotspot analysis. EPA has not approved a $PM_{2.5}$ SIP for Maryland, nor has EPA or the state air agency made any significance findings related to reentrained road dust for the Washington, DC-MD-VA $PM_{2.5}$ nonattainment area. Therefore, reentrained road dust is not considered in the analysis, per the Conformity Rule. In addition, as there is not an applicable $PM_{2.5}$ SIP, there are no $PM_{2.5}$ control measures and the project is in compliance with 40 CFR 93.117.

According to 40 CFR 93.123(b)(2) and (4), a quantitative analysis for applicable projects is not required until EPA releases modeling guidance in the Federal Register. However, a qualitative hot spot analysis is still required. For the ICC project, a qualitative project-level hotspot assessment was conducted in order to assess whether the project will cause or contribute to any new localized $PM_{2.5}$ violations, or increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ NAAQS.

Existing Conditions

The affected area for the purposes of this analysis is the ICC study area, as discussed in Section II of this report and further elaborated in the FEIS and associated documentation. This section includes a discussion of currently available information on existing conditions related to air quality and traffic conditions in the project area.

Air Quality – Monitors

There are currently thirteen monitors in the Washington, DC-MD-VA $PM_{2.5}$ nonattainment area: four in the District of Columbia, five in the Commonwealth of Virginia, and four in the State of Maryland. Based on 2005 air quality monitoring data, there are three monitors that exceed the annual mean $PM_{2.5}$ standard of 15.0 ug/m^3. Two are in Virginia and one is in DC. None of the monitors in the $PM_{2.5}$ nonattainment area are exceeding the 24-hour $PM_{2.5}$ standard of 65 ug/m^3. Appendix A provides a summary of the 2005 air quality monitoring data.

There are two monitors that are in close proximity to the proposed alignment of the ICC. Monitor #240313001 in Rockville, MD is located in the vicinity of the western portion of the ICC at the Lathrop E. Smith Environmental Education Center. Monitor #240330030 in Muirkirk, MD is located in the vicinity of the eastern terminus of the ICC. The Muirkirk Monitor is located next to the Muirkirk MARC commuter train station and CSX rail line. Based on available data from the Maryland Department of Environment, the predominant wind path at the Muirkirk monitor is from the southwest direction. This means that I-95 and US 1 influence the monitor at this location. The Baltimore Washington Parkway was also included in the traffic impact volume due to its proximity to the monitor. Both the Rockville and Muirkirk monitors are currently below the NAAQS for $PM_{2.5}$ (annual and 24-hour).

The Metropolitan Washington Council of Governments (MWCOG) published a report in 2005 that showed a downward trend in annual average $PM_{2.5}$ design values between 1999 and 2004 for the Metropolitan Washing, DC Region.[3]

Transportation and Traffic Conditions
Currently, mobility in the developed portion of Montgomery and northwestern Prince George's Counties is severely limited, because of lack of a continuous high capacity transportation facility except the Capital Beltway. Due to current and future congested conditions on I-495, the Beltway would carry only a small percentage of the increased future traffic. Local roads in the study area will experience a substantial increase in traffic between 2000 and 2030. Specifically, Shady Grove Road immediately northeast of Frederick Road; Falls Road; Norbeck Road (MD 28) between Georgia Avenue (MD 97) and New Hampshire Avenue (MD 650); and East Randolph Road between Randolph Road and I-95 are expect to increase in ADT by over 50 percent. Please refer to Chapter 1 of the FEIS for a complete presentation of the traffic data.

Built and Natural Environment
Montgomery and Prince Georges' Counties have developed effective planning and growth management systems. The existing land use in the study area is residential, commercial, industrial, and agricultural. *Figure II-6 of the FEIS* depicts the existing land use within the two counties. In the vicinity of the western terminus on the remaining undeveloped land, Montgomery County envisions mixed-use development that provides an opportunity to maximize public transportation. In the Rock Creek Park area, the county plans low-density housing, including some rural cluster zoning. In addition they have plans to expand the parkland. In the remaining parts of the county, they intend to protect environmental resources while supporting increased residential and commercial development.

In Prince George's County the existing land use includes a full range of development. The area is roughly divided into three zones. The northern zone is mostly single-family houses. The middle zone has been used for mineral extraction and agriculture. The southern zone is a mix of uses including residential and commercial. The future land use for the northern zone will be continuation of existing land use with infill development. The middle zone has been designated a regional center with the expectation that the land would be principally commercial, with retail, offices, and some high-density development. The southern portion will remain the same land use that currently exists. For a more detailed discussion of the study area land use, please refer to Chapter 2 of the FEIS.

Future Scenario
For the entire nonattainment area, direct on-road mobile sources $PM_{2.5}$ annual emissions are expected to decrease by 56 percent in 2010 from a 2002 baseline.[4] Emissions estimates using EPA's approved emissions estimation tool, MOBILE6.2, show that $PM_{2.5}$ emissions rates from vehicles will drop by almost 50% between 2010 (the anticipated ICC opening year) and 2030 (the ICC design year). In the MWCOG $PM_{2.5}$ conformity assessment, regional emissions estimates of direct $PM_{2.5}$ from on-road mobile sources show a continued decline through 2030.

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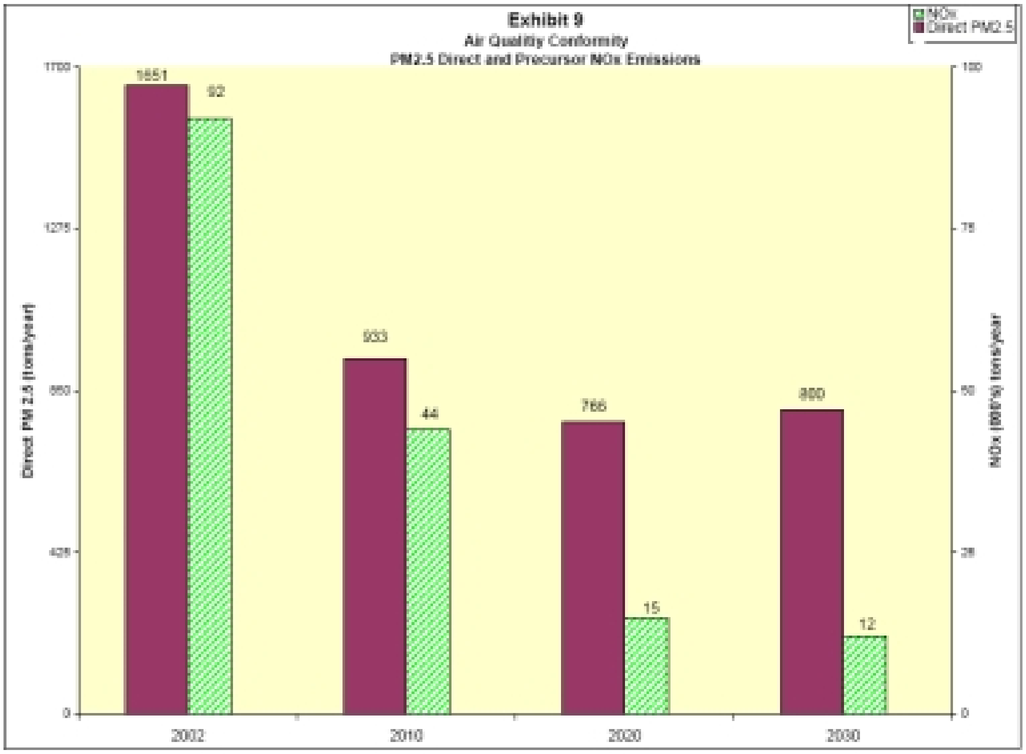
[3] *Air Quality Trends: Metropolitan Washington Region 1993-2004*, Metropolitan Washington Council of Governments, 2005
[4] Fine Particles ($PM_{2.5}$) Standards Air Quality Conformity Assessment. December 21, 2005. National Capital Regional Transportation Planning Board. Metropolitan Washington Council of Governments.

Exhibit 1: $PM_{2.5}$ Trends Analysis for Washington, DC-MD-VA Nonattainment Area[5]



Courtesy of MWCOG

According to EPA, the 2007 Heavy-duty engine standards will result in the introduction of new, highly effective control technologies for heavy-duty engines, beginning in 2007. Particulate matter emission levels are expected to be 90 percent lower on a per vehicle basis than 2000 standards levels due to the 2007 diesel engine and fuel program.[6]

The ICC is intended to provide additional roadway capacity in the study area to accommodate the future traffic growth and demand for east-west travel between the I-270 and I-95 corridors. Increasing the region's roadway capacity with the ICC would also open up some capacity on the local road system to accommodate shorter trips. The managed lanes on the ICC and the additional capacity in the region will help to reduce stop and go traffic, extended idling and improve traffic flow in the area. Please refer to Chapter 1 of the FEIS for a complete presentation of the traffic data.

Analytical Considerations

A comparison approach was used, in which the anticipated traffic volumes on the ICC project were compared to those on other major roadways near existing air quality monitors. First, Maryland State Highway Administration (SHA) compiled a list of monitoring stations in Maryland, northern Virginia, and the District of Columbia, and collected data on traffic counts and truck traffic percentages on major roads near these monitors. FHWA then reviewed this list in order to identify a monitoring site that was

[5] Figure Source: *Fine Particulates ($PM_{2.5}$) Standards Air Quality Conformity Assessment*, Metropolitan Washington Council of Governments, 2005.

[6] Heavy-duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements - Final Rule ("2007 Heavy-Duty Highway Final Rule") (Signed December 21, 2000)

close to major roadways and was exposed to similar traffic counts and truck percentages as the ICC project.

As clarified in the preamble to the July 1, 2004 revision to the transportation conformity rule (64 FR 40056), the conformity rule requires that project-level analyses consider the year of expected peak emissions from the project. For $PM_{2.5}$, this is expected to be a near-term year, such as the first year of operation of the project, because emission rates from vehicles are predicted to decline between the opening year (2010) and the design year (2030) due in part to improvements in tailpipe emissions and national vehicle emissions control programs. As indicated in Exhibit 1, the regional $PM_{2.5}$ emissions are much higher in 2010 than in 2020 and 2030. Since regional emission is a good indicator of the overall emissions trends in the region, therefore it is expected that 2010 would be the year of peak emissions from the project and other emissions sources that affect the project area. In addition, EPA finalized a series of national vehicle control programs expected to reduce vehicle emissions substantially. These programs include the Tier II vehicle and fuel sulfur standards for light-duty vehicles, the 2007 Highway Rule for heavy-duty diesel vehicles, and other related programs.[7]

FHWA reviewed traffic data for the ICC and nearby roadways to identify a worst-case location along the corridor. This review led to the assessment of two locations with different characteristics (Table 1). The location with the overall highest traffic impact in the corridor is where the I-370/ICC meets I-270 and includes the expected traffic volumes from MD 355 (location #1). In 2010, I-270 is projected to carry 184,700 vehicles per day; MD 355 is expected to carry 48,300 vehicles per day; and I-370/ICC in 2010 is projected at 100,300 vehicles per day near its western terminus. Therefore, the total overall 2010 traffic volume in this area would be 333,300 vehicles per day. I-270 has a truck percentage of seven percent near its junction with the I-370/ICC, and both the I-370/ICC and MD 355 are expected to have a truck volume of six percent. The weighted average truck percentage for these three roadways is 6.6 percent, which is approximately 22,000 trucks per day. The second location (location #2) has the highest truck percent where the ICC intersects with I-95. Overall the traffic volume at location #2, which also includes the expected traffic volume from US 1, for 2010 is 261,800 vehicles per day. The weighted average truck percentage for these three roadways is 10.5 percent, which is approximately 27,500 trucks per day.

Site characteristics at these interchanges were also examined. Existing development at I-270 includes industrial, commercial, mixed-use residential, green space, and an elementary school within approximately ½ mile. There is no existing development at the I-95 interchange; currently, a gravel and sand quarry/processing operation occupies approximately 2200 acres surrounding the interchange. Development of this acreage into a high density mixed used site including residential, retail and office space is expected sometime in the future, and is included in the Prince George's Master Plan.

Table 1. Worst-case Locations for Traffic and/or Truck Impact on Proposed ICC Corridor

	Roadway	2010 Average Daily Traffic (ADT)	Trucks[8] (percent)	Total Average Daily Traffic Impact (ADT)	Weighted Truck Average (percent)
Location #1	I-270	184,700	7	333,300	6.6
	I-370/ICC	100,300	6		
	MD 355	48,300	6		
Location #2	US 1	37,400	8	261,800	10.5
	I-95	184,400	12		
	ICC	40,000	6		

[7] For more information on EPA's national vehicle control programs, please refer to EPA's Office of Transportation and Air Quality program information available at http://www.epa.gov/otaq.
[8] The truck percentage includes diesel and gasoline trucks. It also includes buses.

Eleven potential $PM_{2.5}$ monitoring sites were examined[9]. The monitoring site that best matched the worst-case traffic characteristics on the ICC corridor for overall traffic impact, truck percentage, and similarity in traffic characteristics was a monitoring site within the project area in Muirkirk, MD, Monitor #240330030. (Please see Appendix B for a map of this monitoring site). This monitor is located in proximity of three major roadways: I-95, with a 2004 average daily traffic (ADT) volume of 178,900 vehicles per day, US 1 with a 2004 ADT of 31,875, and the Baltimore-Washington Parkway, with a 2004 ADT of 92,825 vehicles per day. The combined total traffic impact at this site is 303,600 vehicles per day. The truck percentage on I-95 near this monitor is 12 percent, 7.5 percent on US 1, and zero on the B/W Parkway (which is truck restricted). The weighted average truck percentage for these three roadways is 7.9 percent, which is approximately 24,000 trucks per day.

In comparing the Muirkirk monitoring site to the ICC, location #1 (I-270 and I-370/ICC interchange) has higher volumes with a lower weighted truck percentage while location #2 (I-95/ICC interchange) has lower volumes, but a higher weighted truck percentage. However, the truck ADT is very similar at the monitoring site and locations #1 and #2 on the ICC.

The 2005 annual average $PM_{2.5}$ concentration the Muirkirk site was 13.4 ug/m^3 based on 107 readings, below the annual NAAQS for $PM_{2.5}$ of 15.0 ug/m^3. In 2005, the 98th percentile reading for the 24-hour $PM_{2.5}$ concentration at this site was 32 ug/m^3, well below the 24-hour NAAQS of 65 ug/m^3.

The Muirkirk monitoring site has the most similar characteristics to the traffic impact and percent trucks for the proposed ICC corridor compared to all the monitors in the nonattainment area. This monitor is not showing any violation for $PM_{2.5}$ NAAQS, neither the annual nor the 24-hour standard. In addition, the monitoring results are based on 2005 observations. The 2010 ICC truck impacts on a per vehicle basis should be less than as observed at this monitor in 2005, based on the implementation of national diesel engine and diesel sulfur fuel regulations that are expected to cut heavy-duty diesel emissions. It may also be noted that control programs for other sources in the region, geared toward meeting the 2010 attainment date for the $PM_{2.5}$ standard, may likely improve air quality in the project area. Regional modeling data currently show an expected 56 percent reduction in $PM_{2.5}$ direct emissions by 2010, from a 2002 baseline.

VI. Conclusion

In summary, based on the analysis, it is determined that the ICC project met all the project level conformity requirements, and that the proposed ICC project will not cause or contribute to a new violation of the $PM_{2.5}$ NAAQS, or increase the frequency or severity of a violation for the following reasons:

- A monitor with comparable traffic characteristics and roadway influences to the project area is currently monitoring $PM_{2.5}$ concentrations that are well below the 24-hour and annual standards, with 2005 values 49% of the 24-hour standard and 89% of the annual standard. The monitor values are below the standards, especially for the 24-hour $PM_{2.5}$ standard.

- $PM_{2.5}$ emissions are expected to be reduced in the project area, as demonstrated by projected reductions in the regional emissions analysis, as well as by national projections by EPA reflecting the impacts of national emissions control programs, such as the 2007 Heavy-duty Diesel Rule.

[9] Thirteen $PM_{2.5}$ monitors exist in the nonattainment area; however, there are two monitors co-located at three sites. Therefore, the total number of available sites is 11.

- Although the worst case traffic volumes along the ICC corridor (location #1) are higher than the comparison monitor, the percentage of trucks and actual number of trucks at that location are below the comparison monitor. The worst- case truck percentage along the ICC corridor (location #2) is somewhat higher than the comparison monitor, but on-road emissions reductions and other national emissions control programs such as the heavy-duty diesel standards should offset the higher number of trucks.

Appendix A

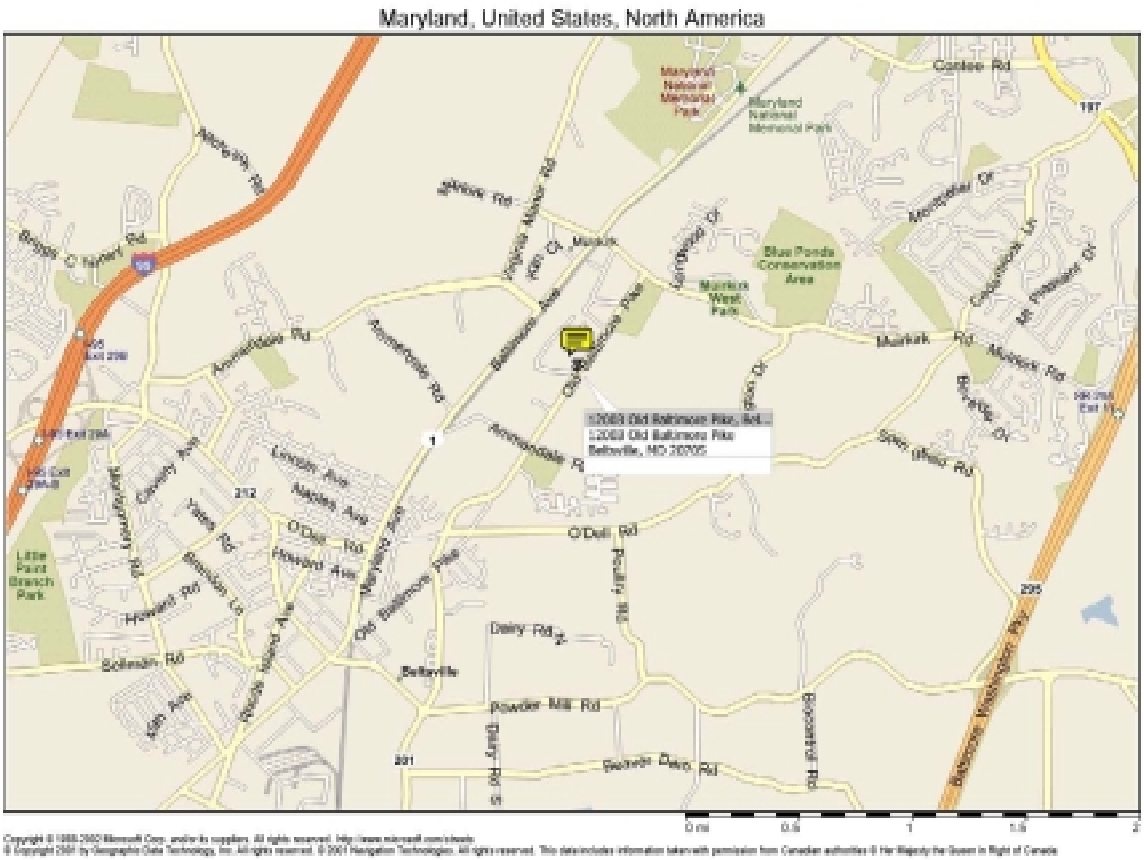
2005 Monitors in the Washington, DC-MD-VA $PM_{2.5}$ Nonattainment Area[10]

Monitor Number and Name	Number of Observations (24-hour)	98^{th} Percentile (24-hour)	Annual Mean (24-hour)
240330030 Muirkirk, MD	107	32	13.4
240313001 Rockville, MD	120	32	13.6
240338003 Upper Marlboro, MD Monitor 1	108	31	13.8
240338003 Upper Marlboro, MD Monitor 2	60	32	13.3
110010041 RFK Stadium (34^{th} & Dix) Monitor 1, DC	321	36	14.8
110010041 RFK Stadium (34^{th} & Dix) Monitor 2, DC	67	31	15.5
110010043 Near Howard University, DC	332	35	14.5
110010042 near Tidal Basin, DC	115	36	15.8
510130020 near Pentagon City, VA	110	34	15.2
510595001 McLean, VA	95	36	14.7
511071005 Ashburn, VA	104	38	14.5
510590030 Franconia, VA	314	35	13.4
510591005 Annandale, VA	110	35	14.3

[10] Maryland Data: Maryland Department of the Environment, Air Monitoring Program
District of Columbia and Virginia Data: United States Environmental Protection Agency, Office of Air Quality Planning and Standards, Information Transfer and Program Integration Information Transfer Group. AIRS Data website: http://www.epa.gov/air/data/monvals.html

Appendix B

Map of Muirkirk $PM_{2.5}$ Monitoring Site (Number 240330030)



Appendix C

Monitoring Sites Assessment[11]

Monitor Number and Name	Traffic Impact Volumes*	Weighted Truck Percent	Comments
240330030 Muirkirk, MD	303,600	7.9	Selected monitor.
240313001 Rockville, MD	74,375	**	Traffic volumes too low.
240338003 Upper Marlboro, MD***	93,650	**	Traffic volumes too low.
110010041 RFK Stadium (34th & Dix), DC***	235,600	5.4	Truck percent too low.
110010043 Near Howard University, DC	130,900	**	Traffic volumes too low.
110010042 near Tidal Basin, DC	223,652	5.04	The truck percentage data is not available for one of the impact roadways
510130020 near Pentagon City, VA	346,000	2.17	Truck percent too low.
510595001 McLean, VA	301,000	3.4	Truck percent too low.
511071005 Ashburn, VA	124,000	**	Traffic volumes too low
510590030 Franconia, VA	216,500	6.2	Truck percent too low.
510591005 Annandale, VA	282,000	2.7	Truck percent too low.

* Based on major roads within approximately two miles of the monitor.
** Where traffic impact volumes were less than ½ of 2010 worst-case traffic volumes, weighted truck percentages were not calculated.
*** There are two monitors at this location.

[11] Underlying data source: District of Columbia Department of Transportation, Virginia Department of Transportation, Transportation Planning Department, Maryland State Highway Administration